

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): ~~Method~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals, ~~particularly human speech~~, in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:

~~characterized in that~~

measuring and/or estimating continuously the power value of the a noise level N in the a currently used telecommunications channel is continuously measured and/or estimated, and setting continuously and automatically a that the degree of reduction of the echo signals to be currently effected is set continuously and automatically, in dependence on the current noise level N of the current channel, according to a predefined function h(N),

wherein the function h(N) increases as N increases.

2. (currently amended): ~~Method~~ The method according to Claim 1, ~~characterized in that the function h(N) increases as N increases,~~

wherein whereby h(N << 0 dB_m) = h_{min} = const. a constant, and

wherein h(N ≈ 0 dB_m) = h_{max} > h_{min}.

3. (currently amended): ~~Method~~ The method according to Claim 2, ~~characterized in that:~~

wherein $-50 \text{ dB} < h_{\min} < -20 \text{ dB}$, ~~preferably~~ $45 \text{ dB} \leq h_{\min} \leq 35 \text{ dB}$, and

wherein $-20 \text{ dB} < h_{\max} < 0 \text{ dB}$, ~~preferably~~ $12 \text{ dB} \leq h_{\max} \leq 6 \text{ dB}$.

4. (currently amended): ~~Method according to Claim 1, characterized in that~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:
measuring and/or estimating continuously the power value of a noise level N in a currently used telecommunications channel; and

setting continuously and automatically a degree of reduction of the echo signals to be currently effected, in dependence on the noise level N of the current channel, according to a predefined function h(N),

wherein the predefined function h(N) is a function $k(S/N)$, which depends on ~~the~~ a signal-to-noise ratio, i.e., ~~the~~ the quotient S/N , ~~from~~ of a power value of ~~the~~ a signal level S of the wanted signals to be transmitted and ~~the~~ a power value of the noise level N, or ~~that~~

wherein the predefined function h(N) is a function $k'(N/S)$, which depends on the reciprocal, N/S , of the signal to noise ratio, of this quotient, preferably or which depends on $N/(N+S)$.

5. (currently amended): ~~Method~~ The method according to Claim 1, characterized in that, ~~in addition to the recognition and reduction of echo signals, further comprising:~~ suppressing or reducing noise signals are also suppressed or reduced.

6. (currently amended): ~~Method according to Claim 5, characterized in that~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:

measuring and/or estimating continuously the power value of a noise level N in a currently used telecommunications channel;

setting continuously and automatically a degree of reduction of the echo signals to be currently effected, in dependence on the noise level N of the current channel, according to a predefined function $h(N)$;

suppressing or reducing noise signals; and

setting continuously and automatically the a degree of reduction of the noise level N to be currently effected is set continuously and automatically, in dependence on the current noise level N, according to a second predefined function $f(N)$, or $g(S/N)$, or $g'(N/S)$, preferably or $g'(N/[N+S])$.

7. (currently amended): ~~Method~~ The method according to Claim 6, characterized in that, ~~for $N << 0$ dBm, wherein~~ the functions $f(N)$, $g(S/N)$, $g'(N/S)$ or $g'([N/N+S])$ each

begincomprise, respectively, with a constant maximum value f_{max} , or g_{max} or and g'_{max} , which are approximately equal to 0, for $N \ll 0$ dBm ≈ 0 , fall to, in particular,

a settable value, preferably a minimum value f_{min} , or g_{min} or and g'_{min} , respectively, in the range between $N = -15$ dBm to -10 dBm, preferably for N or $S/N \approx -12$ dBm, and then rise, to $N \approx 0$ dBm, to a constant value $f_0 > f_{min}$ or $g_0 > g_{min}$ or and $g'_0 > g'_{min}$, respectively, for N approximately equal to 0 dBm,

wherein $f_0, g_0, g'_0 < 0$, and

wherein $f_0 > f_{min}$, $g_0 > g_{min}$ and $g'_0 > g'_{min}$.

8. (currently amended): Method according to Claim 7, characterized in that:

$f_0 \leq -5$ dB, $g_0 \geq -10$ dB, preferably $f_0 \leq -6$ dB, $g_0 \geq -8$ dB, and

$f_{min} \leq -20$ dB, and $g_{min} \geq -30$ dB, preferably $f_{min}, g_{min} \approx -25$ dB.

9. (currently amended): Method The method according to Claim 1, characterized in that the function $h(N)$, at least partially, and preferably in all sub-sections, runs linearlywherein a portion of the function $h(N)$ is linear with N .

10. (currently amended): Method The method according to Claim 4, characterized inwherein a portion of the functions $k(S/N)$ and $k'(N/S$ or $N/(N+S)$), at least partially, and preferably in all sub-sections, run linearlyis linear with S/N and N/S or $N/(N+S)$, respectively.

11. (withdrawn): Method according to Claim 1, characterized in that the function $h(N)$ is constructed of polynomials and runs over N as an asymmetric bell-shaped curve.

12. (withdrawn): Method according to Claim 4, characterized in that the functions $k(S/N)$ and $k'(N/S)$ are constructed of polynomials and run over S/N and N/S respectively as asymmetric bell-shaped curves.

13. (withdrawn): Method according to Claim 1, characterized in that the function $k(N)$ is selected so that the reduction of the noise level N is auditorially adapted according to the psychoacoustic mean values of the human auditory spectrum.

14. (withdrawn): Method according to Claim 4, characterized in that the functions $k(S/N)$ and $k'(N/S)$ are each respectively selected so that the reduction of the noise level N is auditorially adapted according to the psychoacoustic mean values of the human auditory spectrum.

15. (currently amended): ~~Method~~ The method according to Claim 1, characterized in that wherein a speech pause detector (SPD) is used for recognition of the noise level N .

16. (currently amended): ~~Method~~ The method according to Claim 15, characterized in that wherein the power value of the wanted acoustic signals signal to be transmitted is reduced during the speech pauses according to an exponential function.

17. (currently amended): ~~Method according to Claim 5, characterized in that~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:

measuring and/or estimating continuously the power value of a noise level N in a currently used telecommunications channel;

setting continuously and automatically a degree of reduction of the echo signals to be currently effected, in dependence on the noise level N of the current channel, according to a predefined function h(N);

suppressing or reducing noise signals; and

controlling separately the suppression or reduction of the noise signals and the reduction of the echo signals are controlled separately.

18. (withdrawn): Method according to Claim 1, characterized in that an artificial noise signal is also added to the wanted signal during an echo reduction period.

19. (withdrawn): Method according to Claim 18, characterized in that the artificial noise signal comprises a signal sequence which is perceived psychoacoustically as an acoustically comfortable noise (= comfort noise).

20. (withdrawn): Method according to Claim 18, characterized in that the artificial noise signal comprises a noise signal recorded previously during the current telecommunications connection.

21. (new): The method of claim 3, wherein $-45 \text{ dB} \leq h_{\min} \leq -35 \text{ dB}$ and $-12 \text{ dB} \leq h_{\max} \leq -6 \text{ dB}$.

22. (new): The method of claim 4, wherein the predefined function $h(N)$ is a function $k'(N/(N+S))$.

23. (new): The method of claim 6, wherein the second predefined function is $g'(N/(N+S))$.

24. (new): The method of claim 7, wherein the settable minimum value is defined at N or S/N approximately equal to -12 dBm.

25. (new): The method of claim 8, wherein $f_0 \leq -6$ dB, $g_0 \geq -8$ dB and f_{\min} and g_{\min} are approximately equal to -25 dB.

26. (new): The method of claim 9, wherein all portions of the function $h(N)$ are linear with N.

27. (new): The method of claim 10, wherein all portions of the functions $k(S/N)$ and $k'(N/S \text{ or } N/(N+S))$, are linear with S/N and N/S or $N/(N+S)$, respectively.